

### REMARKS

This is in response to the non-final office action mailed April 3, 2007. Claims 1-19 are pending in this application. Claims 1 and 9 have been withdrawn. Claims 2-8 and 10-19 are rejected under 35 U.S.C. §102 and §103. In response, claims 2 and 10 have been amended. No fee is due in connection with this Response. The Director is authorized to charge any fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112857-453 on the account statement.

In the Office Action, claims 2-8 and 10-19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2004/0224231A1 to Fujimoto et al ("*Fujimoto*"). In response, claims 2 and 10 have been amended to recite, in relevant part, an anode comprising an anode collector having a projection and an anode active material layer being formed on and substantially covering the anode current collector and projection. The amendment is supported in the specification. See, specification, page 4, lines 20-30 and FIGS. 1 and 2. In view of the amendment and for the reasons set forth below, Applicants respectfully submit that the rejection is improper and should be withdrawn.

*Fujimoto* fails to disclose or suggest, for example, an anode active material layer being formed on and substantially covering the anode current collector and projection. Rather, *Fujimoto* discloses a current collector with irregularities on its surface, causing valleys, or spaces, on the current collector surface where the thin film does not reach. Specifically, as the thin film expands and shrinks in volume as it stores and releases lithium during charge-discharge reaction, these spaces absorb the change in volume of the active material in the vicinity of the current collector surface. See, *Fujimoto*, [0012] and Fig. 4, element 4. *Fujimoto* further discloses that the presence of these spaces permits the electrode to accommodate a change in volume of the active material as it expands and shrinks, thus preventing a stress produced when the active material expands and shrinks from being imposed on the current collector, so that wrinkling or other type of deformation is not caused to occur in the current collector. See, *Fujimoto*, [0083]. Moreover, *Fujimoto* compares the above with examples of electrodes where there exist little or no spaces between the active layer and current collector. See, *Fujimoto*, [0067-0068]. In those comparative examples, an increased electrode thickness resulted stemming from deformation such as wrinkles formed on the electrode during charge and

discharge, some of which were actually observable with the naked eye. See, *Fujimoto*, [0081-0082].

In contrast to *Fujimoto*, the present claims require the active material to substantially cover the current collector. By this coverage and the associated coverage of the projections formed on the current collector, an enhanced anchoring effect with the projections results, thus improving adhesion properties between the anode current collector and the anode active material layer. These improvements prevent the active layer from falling off, peeling off and being cracked into small pieces due to expansion and shrinkage of the anode active material layer upon charge and discharge. See, specification, page 3, lines 12-17. Therefore, while *Fujimoto* requires spaces adjacent to the current collector to provide room for increased thin film volume during charge and discharge, the instant claims seek substantial coverage of the current collector to fully maximize the adhesion properties to prevent active layer degradation due to charge and discharge.

Accordingly, Applicants respectfully request that the anticipation rejections with respect to Claims 2-8 and 10-19 be reconsidered and the rejections be withdrawn.

In the Office Action, claims 2-8 and 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-135115 to Akagi et al. ("*Akagi*") in view of U.S. Publication No. 2004/0224231A1 to Fujimoto et al ("*Fujimoto*"). In the Office Action, claims 2-8 and 10-16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,242,132 to Neudecker et al. ("*Neudecker*") in view of U.S. Publication No. 2004/0224231A1 to Fujimoto et al ("*Fujimoto*"). In view of the amendment to claims 2 and 10 and for the reasons set forth below, Applicants respectfully submit that the rejection is improper and should be withdrawn.

Even if combinable, Applicants respectfully submit that the combination of references fail to disclose or suggest all the elements of the instant claims. For example, the Office Action admits that both *Akagi* and *Neudecker* fail to teach the use of a current collector having projections. See, Office Action, page 2-3. Moreover, the Office Action states that *Fujimoto* remedies the deficiency in both references by teaching a lithium battery wherein the projections on the cooper collector would help accommodate a change in volume of the active material when it expands and shrinks during discharge. However, as stated above, though *Fujimoto* may disclose a current collector with a projection, it does fail to disclose or suggest an anode active material layer being formed on and substantially covering the anode current collector and

projection. Therefore, the combination of references, taken together, fails to disclose the substantial coverage of the anode current collector and projection.

Accordingly, Applicants respectfully request that the obviousness rejections with respect to Claims 2-8 and 10-19 be reconsidered and the rejections be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

BY 

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